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Intel Corporation

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Applicant	: James R. Trethewey	Art Unit	: 2151
Serial No.	: 09/955,469	Examiner	: Khanh Dinh
Filed	: September 18, 2001		
Title	: LOAD BALANCING AND FAULT TOLERANCE FOR SERVER-BASED SOFTWARE APPLICATIONS		

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BRIEF ON APPEAL

(1) Real Party in Interest

Intel Corporation.

(2) Related Appeals and Interferences

None.

(3) Status of Claims

Claims 1-40 are pending and stand finally rejected.

(4) Status of Amendments

All amendments have been entered.

(5) Summary of Invention

Applicant's independent claim 1 is directed to a method of providing a remote networked computer (L1-L6, N1-N6; page 4, lines 9-13) with a service session ("communication [that] is maintained," see page 7, lines 6-11) using one of a plurality of similarly functioning software applications (see page 3, lines 17-18, and page 6, lines 9-12) residing on different servers (35a, 35b, 35c) with different real network addresses (see page 6, lines 9-10). The method includes receiving (page 9, lines 7-8), from the remote computer and at a device (load balancer 25) having

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a unique network address that is different from the network address of any of the servers (see page 4, lines 5-7) a packet-based message (probe request) comprising a request for a service session (see page 9, lines 4-8). The method also includes assigning (page 9, lines 8-9) one of the several servers to be used by the remote computer in the service session, and transmitting (see page 9, lines 12-16), to the remote computer, a packet-based message (probe response) comprising the unique real network address (210) of the assigned server for the remote user to address subsequent messages during the same session. (See page 9, line 22, to page 10, line 5; page 12, lines 18-22; FIG.4).

Applicant's independent claim 17 is directed to an apparatus (ASP 20) for providing service sessions (see page 7, lines 6-11) to remote networked computers (L1-L6, N1-N6; see page 4, lines 9-13) that includes a plurality of servers (35a, 35b, 35c) each having a different unique network address, each the servers for executing a similarly functioning software application to provide a service session (see page 3, line 23 to page 4, line 5). The apparatus also includes a load balancer (25) having a unique network address different from the network address of any of the servers (see page 4, lines 5-7). The load balancer includes a first processor (29) and first memory (27) for storing instructions (see page 6, lines 21-23). The instructions, when executed by the first processor, assign (see page 9, lines 8-9), in response to receiving (see page 9, lines 7-8) from a remote networked computer a packet-based message comprising a request for a service session (see page 9, lines 4-8), one of the servers to be used by the remote computer in the service session. The apparatus also includes a second processor (39) and second memory (37) for storing instructions (see page 6, lines 12-14) that when executed by the second processor, transmit, to the remote networked computer that requested service, a packet-based message (probe response; see page 9, lines 12-16). The packet-based message contains the identity of the unique real network address (210) of the assigned server to which the remote networked computer is to address packet-based messages during the service session. (See page 9, lines 22, to page 10, line 5; page 12, lines 18-22; FIG. 4)

Applicant's independent claim 30 is directed to an apparatus (load balancer 25) that assigns, for a service session (see page 7, lines 6-11), one of a plurality of servers (35a, 36b, 35c) with unique real network addresses (see page 6, lines 9-12). Each of the plurality of servers is capable of executing a similarly functioning software application to provide the service session

(see page 3, lines 17-18; page 6, lines 9-12). The apparatus (load balancer 25) includes a unique network address that is different from the unique real network address of any of the plurality of servers (see page 4, lines 5-7). The apparatus (25) also includes a processor (29) and memory (27) for storing instructions (see page 6, lines 21-23). When the instructions are executed by the processor, they cause the processor to assign one of the servers to be used by a remote computer in the service cession (see page 9, lines 8-9) in response to receiving a packet-based message (probe request) for the service session from the computer (see page 9, lines 4-8); the instructions, when executed, further cause the processor to transmit, to the remote computer that requested the service session, a packet-based message (probe response) containing the unique real network address of the assigned server (see page 9, lines 12-16) to which the remote computer is to address packet-based messages during the service session (see page 7, lines 16-22).

Applicant's independent claim 35 is directed to computer readable medium that stores program instructions for execution by a processor in a networked computer (see page 8, lines 1-9). When executed, the program instructions perform functions including transmitting, in response to a predetermined user command input to the networked computer, a packet-based message that includes a request for a service cession (probe request) to a remote service provider (see page 8, line 23, to page 9, line 2). The message is addressed to a unique network address associated with the service provider (ASP 20; see page 8, lines 9-12). The service provider (ASP 20) includes a plurality of different servers (35a, 35b, 35c) with different unique real network addresses; each of the servers includes similarly functioning software applications to provide a service session (see page 3, lines 17-18; page 6, lines 8-12). The functions performed further include transmitting during the service session, in response to receiving from the service provider a packet-based message including a unique real network address for one of the plurality of servers (probe response) that has been assigned for the service session (see page 9, lines 7-15), packet-based messages addressed to the unique real network address of the assigned server (see page 9, line 22, to page 10, line 5).

(6) Issues

The Examiner rejected claims 1-5, 9-20 and 24-34 under 35 U.S.C. § 103(a) as being unpatentable over Bruck et al. (U.S. Patent No. 6,801,949) ("Bruck") in view of Brendel et al. (U.S. Patent No. 5,774,660) ("Brendel"). Of these claims, 1, 17 and 30 are independent. The Examiner also rejected dependent claims 6-8 and 21-24 under 35 U.S.C. § 103(a) based on Bruck and Brendel further in view of Bowman-Amuah (U.S. Patent No. 6,289,382) ("Bowman-Amuah").

The Examiner rejected claims 35-40 under 35 U.S.C. § 103(a) as being unpatentable over Bruck in view of Brendel and in further view of Bowman-Amuah. Of these claims, only claim 35 is an independent claim.

Based on the foregoing rejections, the specific issues on appeal are as follows:

(a) Whether claims 1-14 and 16 are unpatentable under 35 U.S.C. § 103(a) over Bruck in view of Brendel.

(b) Whether claim 15 is unpatentable under 35 U.S.C. § 103(a) over Bruck in view of Brendel.

(c) Whether claims 17-29 are unpatentable under 35 U.S.C. § 103(a) over Bruck in view of Brendel.

(d) Whether claims 30-34 are unpatentable under 35 U.S.C. § 103(a) over Bruck in view of Brendel.

(e) Whether claims 35-40 are unpatentable under 35 U.S.C. § 103(a) over Bruck in view of Brendel and in further view of Bowman-Amuah.

(7) Grouping of Claims

(a) Claims 1-14 and 16.

(b) Claim 15.

(c) Claims 17-29.

(d) Claims 30-34.

(e) Claims 35-40.

(8) Arguments

(a) Claims 1-14 and 16 (Independent Claim 1)

With respect to claim 1, the Examiner contended that Bruck discloses a method of providing a remote networked computer with a service session using one of a plurality of similarly functioning software applications residing on different servers, and made reference to "front layer" servers 206, 208, 210 and 212 of Figure 2. The Examiner contended that Bruck also discloses receiving, from a remote computer and at a device having a unique network address that is different from the network address of any of the servers, a packet-based message comprising a request for a service session. Finally with respect to Bruck, the Examiner contended that Bruck discloses assigning one of the several servers (206, 208, 210 and 212) to be used by the remote computer in the service session and transmitting to the remote computer a packet-based message comprising the unique network address of the assigned server (using dynamically assignable IP addresses for each subnet) for the remote user to address subsequent messages during the service session. On this latter point, the Examiner referred to Figure 3 and column 7, line 11 to column 8, line 49.

The Examiner conceded that Bruck does not specifically disclose a real network address of a server. The Examiner contended, however, that Brendel in the same network environment discloses a real network address of a server. To support this contention, the Examiner referred to FIG. 17, the Abstract, and column 16, line 46 to column 17, line 57 of Brendel. The Examiner contended it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement Brendel's teaching into the computer system of Bruck to process data information because it would have enabled routers to use the real Internet Protocol (IP) address of the assigned server to route data packets to the assigned server, and thus, the Examiner contended, balance the load on each server in a communications network.

Applicant continues to maintain, as he did before the Examiner, that the teachings of Bruck and Brendel, either taken alone or the two in combination, do not render claim 1 obvious. In particular, neither Bruck nor Brendel discloses a method *wherein a message comprising a unique real network address of an assigned server for a service session is transmitted to a remote computer* (for the remote user to address later messages during the service session), as is required by Applicant's claim 1. This claimed transmission in Applicant's claimed method of

the assigned server's unique real network address enables the service session to be conducted directly between the remote computer and the assigned server, instead of through the device (e.g., load balancer) that initially received the message comprising the request for a service session.

Bruck discloses a load balancing server system having multiple machines (e.g., 206, 208, 210 and 212) that function as a front-end server layer (or server cluster) between a network (such as the Internet 202) and a back-end server layer 204 having multiple machines 220, 222, 224 and 226 functioning as Web file servers, FTP servers, or other application servers. (Abstract; col. 6, lns. 25-44; Figure 2.) The front layer machines perform dynamic load balancing for both server layers. (Col. 2, lns. 44-46.) As shown in Figure 3, a server cluster 310 may be disposed between an external subnet 312 and internal subnets 316 and 318. (Col. 7, lines 15-19). Bruck discloses that the machines 302, 304, 306 and 308 of the server cluster 310 maintain a set of dynamically assignable IP addresses, referred to as a virtual IP pool (VIP), for each subnet 312, 316 and 318. (Col. 8, lines 1-5). Bruck further discloses that each of the server cluster machines is associated with a primary IP address and with a virtual IP address for each subnet. (Col. 8, lines 9-14.) Bruck discloses that users or host machines on both sides of the server cluster 310 will know of and will direct data packets to an address in one of the virtual IP pools, rather than the primary IP address associated with each server cluster machine. (Col. 8, lines 17-22). Bruck discloses that dynamic assignment of the virtual IP addresses permits reconfiguration in response to machine problems and in response to variations in network traffic loading among the machines. (Col. 8, lns. 34-38.)

Brendel discloses a multi-mode server that includes a load balancer that receives all requests from clients because they use a virtual address for the entire site. (Abstract.) Brendel discloses that a real IP address of an assigned server is used when multiple hops are required to reach an assigned server. (Col. 16, lines 46-47.) Brendel further discloses that the destination IP address of the packets from the load balancer to the assigned server are modified to have the assigned server's real IP address rather than a virtual IP address. (Col. 16, lns. 49-50.) Thus, Brendel explains, intermediate routers can use the real IP address of an assigned server to route the packet to the assigned server (col. 16, lns. 53-54), but again, only after the load balancer receives the request with a virtual address for the entire site (Abstract).

The Examiner's obviousness positions miss the mark. The fact that a real network address is disclosed and used in the Brendel system to route packets from a load balancer to an assigned server is irrelevant to Applicant's claim 1, in which *the real network address of the assigned server is transmitted to the remote computer.* Such a transmission is not disclosed in either Bruck or Brendel. The claimed transmission, as mentioned previously, is performed so that a load balancer is avoided altogether in subsequent transmissions from the remote computer to the assigned server during the service session, and hence the load balancer does not become a bottleneck.

In addition, Bruck and Brendel both teach away from the remote computer using the real network addresses of an assigned server during a service session. In both Bruck and Brendel, all of a remote user's transmissions are directed *to the server system's load balancer* (or load-balancing "front layer server system" as it is called in Bruck). Again, this is different from Applicant's claim 1, where subsequent transmissions of the service session are addressed *directly to the assigned server.* This difference provides advantages not contemplated in the prior art. For example, use of the claimed method prevents a load balancer from becoming a bottleneck in a service session, and avoids the latency problems and inefficient use associated with unnecessarily routing traffic through a load balancer.

Accordingly, independent claim 1 defines an invention that is patentable over Bruck and Brendel, as do dependent claims 2-14 and 16. As such, Applicant requests that the rejection of these claims be removed.

(b) <u>Claim 15 (Independent Claim 1)</u>

Applicant submits that dependent claim 15 is patentable for additional reasons beyond those discussed above with respect to independent claim. Dependent claim 15 depends from claim 1. The examiner rejected claim 15 as being obvious over Bruck in view of Brendel.

Applicant's dependent claim 15 is directed to transmitting the packet-based message (probe response) to the remote computer (L1-L6, N1-N6; page 4, lines 9-13), *by the assigned server* (one of 35a, 35b or 35c). (See FIG. 2, actions 70 and 75; p. 9, lines 10-16; and p. 12, lines 1-4).

With respect to claim 15, the Examiner contended that "[a]s to claims 14-16, Bruck discloses that the unique network addresses are all unique IP addresses, the packet-based message comprising the unique network address the assigned server [sic] is transmitted by the assigned server and comprising the unique network address of the assigned server is transmitted by a load balancer (104 fig. 1) (see figs. 1, 7, col.2 lines 6-31, col.8 lines 1-49 and col.18 line 44 to col. 19, line 65)."

As a preliminary matter, it is unclear to the Applicant what the Examiner meant by "...the packet-based message comprising the unique network address the assigned server is transmitted by the assigned server and comprising the unique network address of the assigned server is transmitted by a load balancer." If the Examiner was asserting that "the packet based message ... is transmitted by a load balancer," then the Examiner failed to address the claim limitation that the packet-based message is "transmitted by the assigned server." If, on the other hand, the Examiner was asserting that "the packet-based message ... is transmitted by the assigned server," then the Examiner failed to support this assertion and make out a prima facie case of obviousness; none of the sections of Bruck that the Examiner cited support this assertion.

In support of the rejection, the Examiner referred the Applicant to "figs. 1, 7, col.2 lines 6-31, col.8 lines 1-49 and col.18 line 44 to col. 19, line 65." None of these figures or sections of Bruck support the Examiners rejection of claim 15. "FIG. 1 illustrates an Internet server farm 102 that is served by a load balancer 104 computer." (Col. 1, line 57-58.) This figure does not disclose or suggest transmitting, by the assigned server, a packet-based message comprising the unique real network address of the assigned server to the remote computer.

Figure 7 is equally irrelevant as support for the Examiner's contention; Figure 7 purports to be "a representation of the Group Membership state protocol word 700 that is used by the cluster computers of FIG. 6 in communicating the state information among the machines of the distributed service cluster." (Col. 11, lines 12-15.) This figure does not disclose or suggest transmitting, by the assigned server, a packet-based message comprising the unique real network address of the assigned server to the remote computer.

Also irrelevant is col. 2, lines 6-31, which merely describes conventional load balancing systems and highlights perceived problems associated with those systems. This section neither

discloses nor suggests transmitting, by the assigned server, a packet-based message comprising the unique real network address of the assigned server to the remote computer.

Also irrelevant is col. 8, lines 1-49, which describes a distributed server cluster, the virtual addresses used by the dynamic server cluster, and failover procedures. Nowhere does this section disclose or suggest transmitting, by the assigned server, a packet-based message comprising the unique real network address of the assigned server to the remote computer.

Finally, the Examiner cited col. 18, line 44 to col. 19, line 65. This section describes a GUI, which is illustrated in FIGs. 10 and 11, and is purportedly used to set up the server cluster. This section does not disclose or suggest transmitting, by the assigned server, a packet-based message comprising the unique real network address of the assigned server to the remote computer.

Accordingly, the Examiner either failed to address an explicit limitation in claim 15 in the rejection, or the Examiner failed to make out a prima facie obviousness rejection to claim 15. As such, Applicant requests that the rejection of this claim be removed.

(c) Claims 17-29 (Independent Claim 17)

The Examiner rejected claim 17 "for the same reasons set forth in claim 1." The Examiner contended that "[a]s to the added limitations, Bruck further discloses a load balancer (104 fig. 1) having a unique network address different from the unique network address (IP address) of any other servers (see also fig. 1, col. 2 lines 6-31 and col. 8 lines 1-49)." The Examiner repeated the concession that "Bruck does not specifically disclose a real network address of a server" but contended that Brendel does disclose a real network address of a server and further contended that it would have been obvious to combine Bruck and Brendel.

For the same reasons that are argued with reference to claim 1, the Examiner's positions are unfounded for two reasons. First, neither Bruck nor Brendel disclose transmitting the real network address of an assigned server to a remote networked computer. Second, Bruck and Brendel both teach away from the remote networked computer using the real network addresses of an assigned server during a service session.

The fact that a real network address is disclosed and used in the Brendel system to route packets from a load balancer to an assigned server is irrelevant to Applicant's claim 17, in which

the real network address of the assigned server is *transmitted to the remote networked computer*. Such a transmission is not disclosed in either Bruck or Brendel. The claimed transmission, as mentioned previously, is performed so that a load balancer is avoided altogether in subsequent transmissions from the remote computer to the assigned server during the service session, and hence the load balancer does not become a bottleneck.

Further, as outlined above, Bruck and Brendel both teach away from the remote networked computer using the real network addresses of an assigned server during a service session. In both Bruck and Brendel, all of a remote user's transmissions are directed *to the server system's load balancer* (or load-balancing "front layer server system" as it is called in Bruck). Again, this is different from Applicant's claim 17, where packet-based messages during the service session are addressed *directly to the assigned server*. This difference provides advantages not contemplated in the prior art. For example, use of the claimed method prevents a load balancer from becoming a bottleneck in a service session, and avoids the latency problems and inefficient use associated with unnecessarily routing traffic through a load balancer.

Accordingly, independent claim 17 defines an invention that is patentable over Bruck and Brendel, as do dependent claims 18-29. As such, Applicant requests that the rejection of these claims be removed.

(d) <u>Claims 30-34 (Independent Claim 30)</u>

The Examiner rejected claims 30-34 "for the same reasons set forth in claims 1 and 10-13 respectively."

For the same reasons that are argued with reference to claims 1 and 17, the Examiner's positions are unfounded for two reasons. First, neither Bruck nor Brendel disclose transmitting the real network address of an assigned server to a remote computer. Second, Bruck and Brendel both teach away from the remote computer using the real network addresses of an assigned server during a service session.

The fact that a real network address is disclosed and used in the Brendel system to route packets from a load balancer to an assigned server is irrelevant to Applicant's claim 30, in which the real network address of the assigned server is *transmitted to the remote computer*. Such a transmission is not disclosed in either Bruck or Brendel. The claimed transmission, as

mentioned previously, is performed so that a load balancer is avoided altogether in subsequent transmissions from the remote computer to the assigned server during the service session, and hence the load balancer does not become a bottleneck.

In addition, Bruck and Brendel both teach away from the remote computer using the real network addresses of an assigned server during a service session. In both Bruck and Brendel, all of a remote user's transmissions are directed *to the server system's load balancer* (or load-balancing "front layer server system" as it is called in Bruck). Again, this is different from Applicant's claim 30, where the remote computer addresses packet-based messages during the service session *directly to the unique real network address of the assigned server*. This difference provides advantages not contemplated in the prior art. For example, use of the claimed method prevents a load balancer from becoming a bottleneck in a service session, and avoids the latency problems and inefficient use associated with unnecessarily routing traffic through a load balancer.

Accordingly, independent claim 30 defines an invention that is patentable over Bruck and Brendel, as do dependent claims 31-34. As such, Applicant requests that the rejection of these claims be removed.

(e) Claims 35-40 (Independent Claim 35)

The Examiner contended that claim 35 is unpatentable under 35 U.S.C. § 103(a) over Bruck in view of Brendel for the reasons the Examiner provided with reference to claims 1, 17 and 30, in further view of Bowman-Amuah. The Examiner repeated the concession that Bruck does not specifically disclose a real network address of a server but reiterated the contention that Brendel does disclose a real network address of a server. The Examiner also conceded that "[n]either Bruck nor Brendel specifically disclose a request including a service provider," but contended that Bowman-Amuah disclosed "a request including a service provider" and referred for support to Bowman-Amuah's Abstract, and specification at col. 1, lines 21-53 and at col. 128, lines 6-50.

For similar reasons that are argued with reference to claims 1, 17 and 30, the Examiner's positions are unfounded for two reasons. First, even before considering Bowman-Amuah, neither Bruck nor Brendel discloses transmitting, from the remote service provider, the real

network address of an assigned server to a networked computer, and receiving that real network address at the networked computer. Second, Bruck and Brendel both teach away from the remote computer using the real network addresses of an assigned server during a service session.

The fact that a real network address is disclosed and used in the Brendel system to route packets from a load balancer to an assigned server is irrelevant to Applicant's claim 35, in which the real network address of the assigned server is *received by a networked computer from the service provider*. Such a transmission from the service provider to the networked computer is not disclosed in either Bruck or Brendel. The claimed transmission, as mentioned previously, is performed so that a load balancer is avoided altogether in subsequent transmissions from the networked computer to the assigned server during the service session, and hence the load balancer does not become a bottleneck.

In addition, Bruck and Brendel both teach away from the networked computer using the real network addresses of an assigned server during a service session. In both Bruck and Brendel, all of a networked user's transmissions are directed *to the server system's load balancer* (or load-balancing "front layer server system" as it is called in Bruck). Again, this is different from Applicant's claim 35, where the networked computer transmits packet-based messages *directly to the unique real network address of the assigned server* during the service session. This difference provides advantages not contemplated in the prior art. For example, use of the claimed method prevents a load balancer from becoming a bottleneck in a service session, and avoids the latency problems and inefficient use associated with unnecessarily routing traffic through a load balancer.

Accordingly, independent claim 35 defines an invention that is patentable over Bruck, Brendel and Bowman-Amuah, either alone or in combination, as do dependent claims 36-40. As such, Applicant requests that the rejection of these claims be removed.

A check is enclosed in the amount of $950 as payment of the brief fee of $500, and the $450 fee for a request for a two-month extension of time. Please apply any other charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

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Appendix of Claims

Listing of Claims:

1. (Previously Amended) A method of providing a remote networked computer with a service session using one of a plurality of similarly functioning software applications residing on different servers with different unique real network addresses, the method comprising:

receiving, from the remote computer and at a device having a unique network address that is different from the network address of any of the servers, a packet-based message comprising a request for a service session;

assigning one of the several servers to be used by the remote computer in the service session; and

transmitting, to the remote computer, a packet-based message comprising the unique real network address of the assigned server for the remote user to address subsequent messages during the service session.

2. (Previously Amended) The method of claim 1 further comprising receiving, at the assigned server, subsequent packet-based messages from the remote computer as part of the service session, the subsequent messages each being addressed to the unique real network address of the assigned server.

3. (Original) The method of claim 2 further comprising, receiving, at the assigned server, periodic packet-based test messages from the remote computer, and in response, transmitting a packet-based message back to the remote computer to indicate an operable connection.

4. (Original) The method of claim 1, wherein the device that receives the message comprising a request for a service session is a load balancer.

5. (Original) The method of claim 1, wherein the software applications involve interaction between multiple remote computers.

6. (Original) The method of claim 5, wherein the software applications provide Internet telephony service.

7. (Original) The method of claim 5, wherein the software applications are multiple-user gaming applications.

8. (Original) The method of claim 5, wherein the software applications are music-sharing applications.

9. (Original) The method of claim 5, wherein the software applications are peer-to-peer applications.

10. (Original) The method of claim 4, wherein the message comprising a request for a service session includes a network address header containing the unique network address of the load balancer, a data port address header, and data fields associated with the software application.

11. (Original) The method of claim 10, wherein the data fields associated with the software application includes a length field, a type field, and a field containing the network address of the remote computer that requested the service session.

12. (Previously Amended) The method of claim 1, wherein the message transmitted to the remote computer comprising the unique real network address of the assigned server includes a network address header containing a unique network address associated with the remote computer that requested the service session, a data port address header, and data fields associated with the software application.

13. (Previously Amended) The method of claim 12, wherein the data fields associated with the software applications includes a length field, a type field, and a field containing the unique real network address of the assigned server.

14. (Previously Amended) The method of claim 1, wherein the unique real network addresses are all unique IP addresses.

15. (Previously Amended) The method of claim 1, wherein the packet-based message comprising the unique real network address of the assigned server is transmitted by the assigned server.

16. (Previously Amended) The method of claim 1, wherein the packet-based message comprising the unique real network address of the assigned server is transmitted by a load balancer.

17. (Previously Amended) An apparatus for providing service sessions to remote networked computers, comprising:

a plurality of servers each having a different unique real network address, each of the servers for executing a similarly functioning software application to provide a service session;

a load balancer having a unique network address different from the unique real network address of any of the servers, the load balancer comprising a first processor and first memory for storing thereon instructions that when executed by the first processor assigns, in response to receiving from a remote networked computer a packet-based message comprising a request for a service session, one of the servers to be used by the remote computer in the service session;

a second processor and second memory for storing thereon instructions that when executed by the second processor transmits, to the remote networked computer that requested service, a packet-based message containing the identity of the unique real network address of the assigned server to which the remote networked computer is to address packet-based messages during the service session.

18. (Original) The apparatus of claim 17, wherein the first and second processors are the same, and the first and second memory are the same, the second processor and second memory thus being part of the load balancer.

19. (Original) The apparatus of claim 17, wherein the second processor and the second memory are part of the assigned server.

20. (Original) The apparatus of claim 17, wherein the software applications involve interaction between multiple remote users.

21. (Original) The apparatus of claim 20, wherein the software applications are Internet telephony applications.

22. (Original) The apparatus of claim 20, wherein the software applications are multiple user gaming applications.

23. (Original) The method of claim 20, wherein the software applications are music-sharing applications.

24. (Original) The method of claim 20, wherein the software applications are peer-to-peer applications.

25. (Original) The apparatus of claim 17, wherein the message comprising a request for a service session includes a network address header containing the unique network address of the load balancer, a data port address header, and data fields associated with the software application.

26. (Original) The apparatus of claim 25, wherein the data fields associated with the software application includes a length field, a type field, and a field containing the network address of the remote computer that requested the service session.

27. (Previously Amended) The apparatus of claim 17, wherein the message transmitted to the remote computer comprising the unique real network address of the assigned server includes a network address header containing a unique network address associated with the remote computer that requested the service session, a data port address header, and data fields associated with the software application.

28. (Previously Amended) The apparatus of claim 27, wherein the data fields associated with the software applications includes a length field, a type field, and a field containing the unique real network address of the assigned server.

29. (Previously Amended) The apparatus of claim 17, wherein the unique real network addresses are all unique IP addresses.

30. (Previously Amended) An apparatus that assigns, for a service session, one of a plurality of servers with unique real network addresses, each of the plurality of servers being capable of executing a similarly functioning software application to provide the service session, the apparatus comprising:

a unique network address that is different from the unique real network address of any of the plurality of servers;

a processor; and

memory for storing thereon instructions that when executed by the processor perform the following functions:

assigns one of the servers to be used by a remote computer in the service session in response to receiving a packet-based message comprising a request for the service session from the remote computer; and

transmits, to the remote computer that requested the service session, a packet-based message containing the unique real network address of the assigned server to which the remote computer is to address packet-based messages during the service session.

31. (Original) The apparatus of claim 30, wherein the message comprising a request for a service session includes a network address header that contains the unique network address of the apparatus, a data port address header, and data fields associated with the software application.

32. (Original) The apparatus of claim 31, wherein the data fields associated with the software application includes a length field, a type field, and a field containing the network address of the remote computer that requested the service session.

33. (Previously Amended) The apparatus of claim 30, wherein the message transmitted to the remote computer comprising the unique real network address of the assigned server includes a network address header containing a unique network address associated with the remote computer that requested the service session, a data port address header, and data fields associated with the software application.

34. (Previously Amended) The apparatus of claim 33, wherein the data fields associated with the software applications includes a length field, a type field, and a field containing the unique real network address of the assigned server.

35. (Previously Amended) Computer readable medium having stored thereon program instructions that, when executed by a processor in a networked computer, perform the following functions:

transmits, in response to a predetermined user command input to the networked computer, a packet-based message comprising a request for a service session to a remote service provider, the message being addressed to a unique network address associated with the service provider, the service provider comprising a plurality of different servers with different unique real network addresses, each of the servers having thereon similarly functioning software applications to provide a service session;

in response to receiving from the service provider a packet-based message comprising a unique real network address for one of the plurality of servers that has been assigned for the

service session, transmits during the service session packet-based messages addressed to the unique real network address of the assigned server.

36. (Original) The computer readable medium of claim 35, wherein the service session involves interaction between multiple networked computers remote from the service provider.

37. (Original) The computer readable medium of claim 36, wherein the service session is an Internet telephony application.

38. (Original) The computer readable medium of claim 36, wherein the service session is a multiple-user gaming application.

39. (Previously Amended) The computer readable medium of claim 35, further comprising instructions that when executed by the processor perform the following functions:

periodically transmits during the service session packet-based test messages addressed to the unique real network address of the assigned server;

determines that a connection with the assigned server is disconnected if a packet-based message responding to the test message is not received from the assigned server within a predetermined period of time.

40. (Original) The computer readable medium of claim 39, further comprising instructions that when executed by the processor perform the following function:

in response to determining that a connection with the assigned server is disconnected, transmits a packet-based message comprising a request for a service session to the remote service provider and addressed to the unique network address associated with the service provider.